

## Notes on the SALSA Workshop

### American Meteorological Society Annual Meeting

Hyatt Regency Hotel, Phoenix, Arizona

15 January 1998, 1:30-5:00 pm

The Semi-Arid Land-Surface-Atmosphere ("SALSA") Program is a multi-agency, multi-national global-change research effort that seeks to evaluate the consequences of natural and human-induced changes in semi-arid environments.

#### Workshop Participants

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#### Other Participants at the AMS Conference

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#### PURPOSE

The purpose of this workshop was to coordinate the analysis and publication of SALSA 1997 research results; discuss data integration and database management issues; outline research plans for 1998; and propose future workshops and meetings. Special emphasis was placed on the ORSTOM/IMADES 1998 field experiments on the Mexico portion of the San Pedro River basin and coordination of trans-boundary efforts.

## INTRODUCTIONS

Dave Goodrich and Ghani Chehbouni opened the meeting by inviting the participants to introduce themselves and state their role or interest in the SALSA program (see participation list above). Summaries of ongoing research activities can be found on the SALSA webpage:

[http://www.tucson.ars.ag.gov/salsa/archive/documents/research\\_summaries/research\\_summaries\\_1997.html](http://www.tucson.ars.ag.gov/salsa/archive/documents/research_summaries/research_summaries_1997.html)

New SALSA collaborators included Ward Brady (ASU) who is studying trans-boundary socioeconomic and environmental issues as part of the multi-university SCERP program (see their website at <http://www.civil.utah.edu/scerp/>); Ron Tiller and Linda Kennedy (ASU) who are studying the ecology and recovery potential of big sacaton in the riparian grasslands in southeastern Arizona; and Diana Hadley and Fritz Jandrey (UA, Arizona State Museum) who are interested in historical landuse on the US and Mexican sides of the San Pedro River basin. Tom Sisk (NAU) was unable to attend the workshop but provided a handout outlining the his study of ecosystem fragmentation and restoration within the basin. For more information on SERDP, view their website at: <http://www.hgl.com/SERDP/>.

## DISCUSSION OF SALSA SPECIAL-ISSUE PUBLICATION

Dave Goodrich proposed a three step approach to publishing results of 1997 SALSA activities. The first step would be to publish a brief “summary” of existing results in a science newspaper with a rapid turn-around time such as AGU’s “EOS.” The summary article could be submitted within 1-2 months. The next step would be to publish an extended “overview” article (~20 pages), condensed from existing AMS papers, in a journal with an intermediate turn-around time, perhaps the “Bulletin of the American Meteorological Society.” (Note that digital forms of EOS and BAMS can be viewed by following the AGU and AMS links on the SALSA website.) The overview article could be submitted within 4-6 months. Finally, arrangements would be made with a journal to publish a “special-issue” collection of SALSA papers. These papers would extend the data analysis and modeling beyond that covered in the AMS papers. Draft versions of the special-issue papers could be ready for “in-house” peer review in one year and ready for submission to the journal shortly thereafter. Dave queried those present if they planned to develop their papers into journal articles; most indicated yes. The major question posed was which journal would be most appropriate for the special-issue, that is, one with the desired readership and reasonable publication schedule? A discussion followed on various journals that may fit these requirements and the following actions were recommended.

### \*\*\*ACTION ITEMS\*\*\*

1. The following persons will contact the respective science journals about the prospect of publishing a SALSA special-issue and will forward the responses to Dave Goodrich by 15 Feb 98:

Susan Moran, Agricultural and Forest Meteorology;  
Dave Williams, Journal of Arid Environments;  
Dave Goodrich, Water Resources Research;  
Bill Kepner, Journal of Environmental Monitoring and Assessment;  
Dan Cooper, Journal of Geophysical Research-Atmosphere.

Factors to be considered include target audience (readership), review and publication schedule, page charges, color plate charges. Other SALSA participants are welcome to send their own recommendations to Dave as well.

2. Dave Goodrich and Ghani Chehbouni will review this information and select the most appropriate journals for the summary, overview, and special-issue articles by 28 Feb 98, make subsequent contacts, assign writing tasks, and establish a publishing schedule.
3. All contributors to the SALSA special issue will have draft manuscripts ready by 1 Feb 99 (DEADLINE).

## DATA EXCHANGE / INTEGRATION ISSUES

The issues of data exchange, integration, and management were discussed by the group. Dave Goodrich emphasized the need to develop standards to facilitate data exchange, protect data sets, and assure quality control. To address near-term data management issues, it was recommended that SALSA researchers prepare metadata files which describe the nature and availability of their data sets. Until there is a centralized data facility and an agreed-upon data access policy, each researcher will maintain their own data set and control distribution of the data. It was also recommended that SALSA data be shared only among SALSA collaborators at this time.

In the mid-term, researchers will be asked to organize their data sets according to a common format, such as the simple ASCII files used for the Monsoon '90 database. This would facilitate exchange and usability among SALSA collaborators. Again, data distribution would be limited to SALSA collaborators and persons sharing data must discuss co-authorship on subsequent publications.

In the long-term, the data sets will be brought together in a standardized database, such as used for Hapex-Sahel. This will require sophisticated software and a dedicated database manager. The data would be available on CD-ROM or over the Internet, and eventually made available to interested researchers outside the SALSA community.

Non-spatial (variable/parameter) and spatial (imagery) data will need to be handled separately, largely because of the massive storage requirements of the spatial data. It was also recommended that SALSA researchers maintain duplicate copies of their data sets; accordingly, they were invited to store duplicate materials at the ARS office for safe-keeping, if they desire.

### \*\*\*ACTION ITEMS\*\*\*

1. Bruce Goff and Dave Goodrich will develop draft metadata formats for non-spatial and spatial data sets and distribute it to the SALSA group for comment, by 4 Feb 98.
2. After incorporating recommended changes, Bruce Goff will send metadata forms to each researcher by 6 Feb 98.
3. Each researcher (or research group) will return completed metadata forms to Bruce Goff by 20 Feb 98.
4. Bruce Goff will compile the metadata forms and distribute them to SALSA researchers and/or post them on the SALSA website by 30 Feb 98.

## 1998 RESEARCH PLANS

[Note: Much of the material presented by the speakers was on overhead transparencies or handouts. This information will be assembled in digital format and emailed as an addendum to these notes. The following notes refer to the general topics of discussion.]

John Schieldge, JPL, discussed the upcoming "MASTER" (MODIS and ASTER) remote sensing effort that could be ready by Aug 98. He also mentioned some of the bureaucratic and logistical constraints to flying the NASA/DOE plane into Mexico.

Ghani Chehbouni, ORSTOM/IMADES, outlined the planned activities of the SALSA Mexico team. He emphasized the importance of involving US researchers in developing and implementing hydrological measurement strategies on the Mexico side of the San Pedro River basin.

Dave Goodrich summarized Rachel Pinker's (U. of Maryland) 1998 research activities dealing with derivation of surface short-wave fluxes and temperatures from satellite data; and Tom Sisk's (NAU) proposed ecology studies.

Dave also queried the ARS and UA researchers about plans to follow-up on the 1997 Riparian Campaign research. Dave Williams indicated he was going to study sapflow under irrigation treatments. Martha Whitaker will continue monitoring streambank conductance until June, Russ Scott will continue operating the meteorological stations, and Dave Goodrich et al. will periodically measure surface and groundwater conditions at the Lewis Springs site. Jiaguo

Qi plans to continue monitoring vegetation plots on the Audubon Research Ranch and Susan Moran had no activities planned.

Bill Kepner (EPA) showed a long list of GIS coverages for the Upper San Pedro Basin that his office was developing as part of the SALSA effort. One of the major activities they plan to undertake in 1998 is a comprehensive field verification of the vegetation classification developed from Landsat imagery. Bill will be asking the SALSA community as well as other agencies and interested groups, in both the USA and Mexico, to assist EPA in this labor-intensive process. He also asked that SALSA collaborators with specific expertise in this type of large-scale vegetation sampling assist him in developing the sampling scheme. The product of this effort will be a very accurate vegetation map that can be used as the basis for future landscape studies.

Ward Brady (ASU) briefly described his efforts as part of the multi-institutional SCERP (Southwest Center for Environmental Research and Policy) program. SCERP will be studying trans-boundary issues in the Tijuana and San Pedro Basins and would like to coordinate activities with the SALSA program.

Dave Goodrich handed out copies of research questions submitted by various SALSA participants (these were emailed to the SALSA AMS mail list previously and are currently posted on the SALSA website) and asked the group to consider them in their subsequent discussions. The group then broke into smaller groups for an hour of collaborative discussion.

\*\*\*ACTION ITEMS\*\*\*

1. Dave Goodrich will assess prospects for ARS participation in the SALSA 1998 Mexico research effort and communicate this to the ORSTOM/IMADES group by 30 Feb 98.
2. Hector Arias and Jean-Paul Lhomme will investigate the feasibility of importing hydrology equipment into Mexico and will communicate the results to the ARS by 30 Feb 98.
3. Bill Kepner will propose a plan for the vegetation-classification field sampling program and coordinate with US and Mexico counterparts about logistics and scheduling.

FUTURE DIRECTION, SCIENCE PLAN, ETC.

The principal focus of the 1998 field research will be on the ORSTOM/IMADES study sites in Mexico. Additionally, several existing SALSA activities will continue into 1998, including mesoscale modeling, micrometeorological and stream-aquifer monitoring at Lewis Springs, remote sensing at the Research Ranch, and landscape classification and analysis. SALSA will also collaborate on several ongoing or new studies in the San Pedro Basin, including sacaton grassland research, socioeconomic and environmental policy studies, ecosystem fragmentation studies, and historical landuse analysis. Additional collaborative research prospects are being investigated with the US Geological Survey, Bureau of Reclamation, and Biosphere 2.

SALSA Workshop participants returned from the collaborative discussions cautiously optimistic about achieving the principal goal of the 1997 Riparian Campaign: a better understanding of evapotranspiration processes along the riparian corridor. It was generally acknowledged that conventional energy-balance techniques alone were inadequate to estimate ET from the linear riparian system, but that the integration of lidar, sapflux, remote sensing, and other data may yield the desired results, provided scaling issues could be resolved. Although Larry Hipps suggested prayer was needed (for inspiration or a miracle?) it was generally agreed that the goal could be achieved through effective collaboration and data exchange among the SALSA researchers. Analysis of the Riparian Campaign and Mexico-site data, along with the associated studies, and the preparation of a special-issue publication are primary objectives for SALSA in 1998.

Dave Goodrich briefly spoke about the SALSA Science Plan which needs to be submitted to NASA by the end of Mar 98. Preparation of this document will be undertaken by Bruce Goff, Dave Goodrich, and Ghani Chehbouni, in consultation with other SALSA participants. The Science Plan will serve as a guide for future SALSA activities and will be used to pursue funding opportunities.

It was proposed that the next SALSA Workshop be held in early November 1998. The agenda and venue for this meeting will be discussed in subsequent correspondence.

The ORSTOM/IMADES contingent proposed to hold a SALSA meeting in Hermosillo some time in 1999. This meeting would address how the scientific knowledge acquired by SALSA could be applied to management of the San Pedro River Basin. Hector Arias recommended that the meeting include both science and policy issues and that proceedings be produced in both Spanish and English. If this meeting is to include non-SALSA participants, preparations and announcements should be made far in advance.

\*\*\*ACTION ITEMS\*\*\*

1. Bruce Goff and Dave Goodrich, with input from others will prepare a SALSA Science Plan and submit it to NASA by the 31 Mar 98 deadline.
2. Ghani Chehbouni and Dave Goodrich will develop a proposed agenda and venue for the Nov 98 SALSA Workshop and distribute it by 30 Jul 98.
3. Ghani Chehbouni and Hector Arias will plan the proposed 1999 Hermosillo Meeting, and distribute information on the theme, agenda, venue, participants, and other matters by 30 Jul 98.

Contact SALSA program leaders, Dave Goodrich and Ghani Chehbouni at the email addresses given above for more information about SALSA 1998 plans.